

**REMARKS**

Claims 1-24 and 28-30 are pending in this application. By this Amendment, claims 1, 12, and 13 are amended. No new matter is added.

**I. Response to Request for Information**

The Office Action requests additional information regarding a potential public use or on sale activity. During a telephone conversation with the Examiner on December 14, 2006, the Examiner clarified that the Examiner's request was directed to any publications, presentations, or other disclosures in Applicants' possession that disclose the claimed invention. Applicants confirm that the claimed invention was not publicly used and/or sold. Further, Applicants confirm that they possess no publications, presentations, or other disclosures discussing the claimed invention.

**II. Claim Objections**

Claims 1, 12 and 13 are objected to because of various informalities. Claims 1, 12, and 13 have been amended to obviate the objection. Withdrawal of the objection is respectfully requested.

**III. Claim Rejections Under 35 U.S.C. §102(b)**

The Office Action rejects claims 1-24 and 28-30 under 35 U.S.C. §102(b) based upon a public use as allegedly evidenced by the following publications ("the alleged 102(b) documents"): I) Coleman, J et al., *Heijunka: A Key to the Toyota Production System* (1994); II) Chase et al., *Productions and Operations Management* (1995); and 3) Sparling, David, *Balancing Just-In-Time Production Units: The N U-Line Balancing Problem* (1998). This rejection is respectfully traversed.

The Office Action fails to indicate how the three references, alone or in combination, establish a "public use" or "sale" of the claimed invention. Specifically, the Office Action fails to make clear how the alleged 102(b) documents establish that the claimed invention was

present in a single system, at a given point in time, that was ready for patenting and (1) was accessible to the public or commercially exploited (see MPEP §2133.03(a)), or (2) was the subject of a commercial offer for sale not primarily for experimental purposes. Instead, the Office Action simply appears to imply that these three alleged §102(b) documents, each of which has a different author and a different date of publication, might somehow collectively suggest a public use or sale of a single system that anticipates the claimed invention. This analysis does not meet the legal requirements of an anticipation analysis under §102(b). Thus, withdrawal of the rejection is respectfully requested.

#### **IV. Claim Rejections Under 35 U.S.C. §103**

The Office Action rejects claims 1-22 and 28-30 under 35 U.S.C. §103(a) as being unpatentable over the Chase publication in view of the De Matta publication. This rejection is respectfully traversed.

Specifically, Applicants submit that the cited art, taken individually or in any combination, fails to disclose or suggest the claimed computer implemented system, method or computer program product for drafting a supply plan/production plan of an article or service in a plurality of production lines capable of producing different articles or services, each production line including a plurality of supply stations capable of supplying the article or service, and including reiteratively changing a distribution parameter and work force parameter, as disclosed in the present application (e.g., in Figs. 4 and 6) and recited in independent claims 1, 12 and 13. Applicants further submit that the cited art fails to disclose or suggest a computer-implemented production plan drafting method of drafting a production plan for producing an article in a plurality of production lines, including at least the feature wherein a minimum gross personnel cost is calculated by reiteratively adjusting, *in nested sequence*, the number of workers distributed to the worker categories, the tact time, and the

planned production volume allocated to each of the production lines, as recited in claim 23. An example of this feature is shown in Fig. 6 in nested, iterative steps S210, S211, S212.

The Chase publication is a textbook on production and operations management which discloses various methods to implement into production processes. However, the Chase publication does not teach or suggest the claimed combination of features, as discussed below.

First, the portions of the textbook cited by the Office Action, do not deal with a *plurality of production lines capable of producing different articles or services* as recited in the claims. For instance, Exhibit 6.5 discusses a Toyota example of a mixed-model production cycle in a Japanese assembly plant. However, this Toyota example involves "scheduling several different models to be produced over a given day or week on the same line in a cyclical fashion" (emphasis added). See pgs. 243-244 and 411.

Second, the portions of the textbook cited in the Office Action relate to different theories and approaches towards production that can be employed; however, there is no indication in Chase that these different methods are combined into a single system. Moreover, the Office Action picks and chooses elements from each of these methods to arrive at the claimed invention, without providing any motivation for combining them. This is improper. Each method discussed in the textbook has a different objective. For example, the Office Action relies on uniform plant loading on page 243 to disclose the claimed storing unit. Uniform plant loading is defined in the text as "smoothing the production flow to dampen the reaction waves that normally occur in response to schedule variations." The Office Action also relies on an aggregate planning method to teach or suggest the claimed storing unit. Aggregate production planning is concerned with "setting production rates by product group or other broad categories for the intermediate term (6 to 18 months)." See page 516. Another example is the Office Action's use of the Just-In-Time method to teach the

claimed storing unit (see e.g. pg. 7 of the specification), and then using aggregate planning method and job shop scheduling to disclose the claimed "supply volume distributing means for distributing the input required supply volume to station supply volumes to be supplied from the supply stations...." It would not have been obvious to combine these different methods disclosed by Chase in the manner asserted by the Office Action, and the Office Action has set forth no motivation to combine them.

Finally, the Office Action acknowledges that Chase does not expressly teach the claimed "supply volume distributing means for distributing the input required supply volume to station supply volumes to be supplied from the supply stations *based on a distribution parameter*" (emphasis added). The Office Action that the De Matta publication teaches "distributing a supply volume to station supply volumes to be supplied from the supply stations based on distribution parameter ( $X_{ijts}$ ) and workforce parameters." Thus, the Office Action alleges that it would have been obvious to combine the Chase publication with the De Matta publication because De Matta teaches a supply plan for the production of *an article* on *multiple production lines* (emphasis added). This is in error, for at least the reasons discussed below.

First, as discussed above, Chase does not disclose a system with a "*plurality of production lines capable of producing different articles or services*" (emphasis added). Additionally, as recognized by the Office Action, De Matta does not teach or suggest a system using a "*plurality of production lines capable of producing different articles or services*." Instead, De Matta teaches a supply plan for the production of an article, not the production of "different articles or services." Specifically, the method in De Matta uses lines which "can produce only one product" and teaches away from producing multiple products on a single line, as product "changeovers on production lines incur" extra costs and reduce output. See Col. 1-2, for example. Thus, because neither reference discloses a "*plurality of*

*production lines capable of producing different articles or services," the combination, even if made, not would have included a "plurality of production lines capable of producing different articles or services."*

Second, the combination of De Matta and Chase is improper as the Office Action does not clearly indicate how the method used in De Matta would be properly combined with the various methods used in Chase. For example, as noted in De Matta, "process industries plan production differently from job shop and assembly industries [as] they tend to schedule capacity first before raw materials." As indicated above, the Office Action relies on various methods in its rejection, including the job shop method. Such a method is clearly inconsistent with De Matta. Thus, as the De Matta article deals with capacity-oriented production scheduling, and the Office Action relies on sections of Chase such as the section on the job shop method, their combination is improper.

Thus, for at least these reasons, the rejection is respectfully traversed.

#### **V. Official Notice**

The Office Action takes official notice that "operating production facilities during non-'regular' hours/times wherein the irregular time includes rates/costs typically different from regular operations (e.g. time and a half, etc.) is old and very well known wherein the irregular hours includes nights, weekends, overtime and holidays as the like wherein irregular operations are typically employed to meet product demand that can not be met during regular operation." This finding is respectfully traversed.

Applicants are not aware that operating production facilities during non-'regular' hours/times wherein the irregular time includes rates/costs typically different from regular operations (e.g. time and a half, etc.) is old and very well known wherein the irregular hours includes nights, weekends, overtime and holidays as the like wherein irregular operations are typically employed to meet product demand that can not be met during regular operation, in

the context of the claimed invention. Applicants request that the Examiner provide adequate evidence to support the taking of official notice.

**VI. Claim Rejection Under 35 U.S.C. §103(a)**

The Office Action rejects claim 23 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,198,980 (Costanza) in view of the Sparling Publication and further in view of two publications (Parker and DuCote) referred to collectively as DSSPS. This rejection is respectfully traversed.

The Office Action relies on the DSSPS publications for a teaching of the claimed calculating of a minimum gross personal cost "by reiteratively adjusting, in nested sequence, the number of workers distributed to the worker categories, the tact time, and the planned production volume allocated to each of the production lines." However, this analysis is incorrect, as explained below.

Parker discloses a decision support system for personnel scheduling in a manufacturing environment. A decision support system is designed to generate labor requirements by worker category and work center based on master production schedules. The master production schedule "must" be entered into the system. See Section 2.1, page 185. Once product demands have been analyzed, the methodology seeks to find the least cost alternative associated with a particular time period. The cost relationship consider costs associated with "wage rates, worker interchangeability, overtime costs, weekend work, second and third shift wage premiums and hiring and layoff costs." See page 186, Section 2.3. The gross personnel cost is not calculated by adjusting, in nested sequence, the number of workers distributed to the worker categories, the tact time, and the planned production volume allocated to each of the production lines as claimed. This is evidenced in section 2.4 which assigns workers to the work centers by worker category after cost is analyzed. See col. 1, section 2.4, page 186.

DuCote discloses DSS software which models personnel scheduling in a manufacturing environment. The scheduling heuristic considers worker interchangeability, new hires, extra shifts, layoffs, overtime, weekend work and unexpected absences. The cost analysis module calculates the difference between the available work capacity and the required work capacity. If a capacity shortage is experienced, equations are used to add incremental work hours, and therefore personnel capacity, based on regular shift, overtime and weekend operations as pre-defined by the user. There is no mention of tact time in DuCote.

Therefore, neither DSSPS reference teaches the claimed calculation of a minimum gross personnel cost by "reiteratively adjusting, in nested sequence, the number of workers distributed to the worker categories, the tact time, and the planned production volume allocated to each of the production lines."

Sparling fails to remedy the deficiencies of Costanza or the DSSPS references. Thus, even if Costanza, DSSPS and Sparling were combined as suggested by the Office Action, the combination would not include "reiteratively adjusting, in nested sequence, the number of workers distributed to the worker categories, the tact time, and the planned production volume allocated to each of the production lines." Therefore, withdrawal of the rejection is respectfully requested.

## **VII. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:AEG/jnm

Attachment:  
Petition for Extension of Time

Date: February 21, 2007

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